CLAIMS:

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- 1. An optical data storage medium for recording by means of a focused radiation beam having a wavelength λ and entering through an entrance face of the medium during recording, at least comprising:
 - -a substrate, with a surface including a guide groove with a depth g,
 - -a stack of layers on the substrate, which stack includes:
- -a reflective layer of a material having a complex refractive index $\tilde{n}_{M\lambda} = n_{M\lambda} i^*k_{M\lambda}$ at the wavelength λ , n_M denoting the real part and k_M denoting the imaginary part of $\tilde{n}_{T\lambda}$, present adjacent the surface of the substrate in substantial conformity with the surface,
- -a transparent layer through which the radiation beam is incident during recording and of a material having a complex refractive index $\tilde{n}_{T\lambda} = n_{T\lambda} i * k_{T\lambda}$,
- -a recording layer of a material having a complex refractive index $\tilde{n}_{R\lambda} = n_{R\lambda} i * k_{R\lambda}$ and having a thickness d_{RG} in the groove portion and a thickness d_{RL} in the portion between grooves, being interposed between the reflective layer and the transparent layer, characterized in that the following requirements are fulfilled:
- $0.25/(3.0+k_{M\lambda}^2) + 0.17 < g*n_T/\lambda < 0.22/(3.0+k_{M\lambda}^2) + 0.45 \text{ and } 0.2 < (d_{RG}-d_{RL})/g < 0.5 \text{ and } 0 < d_{RG} < \lambda/n_{R\lambda} \text{ and } k_{R\lambda} < 0.5 \text{ and } 2 < n_{R\lambda} < 2.6.$
 - 2. An optical data storage medium as claimed in Claim 1 wherein the reflective layer is a metal layer having a thickness $d_M > 20$ nm and $g^* n_T/\lambda < 0.50$.
 - 3. An optical data storage medium as claimed in Claim 1, wherein 0.25 < g* n_T/λ and $k_{M\lambda} < 0.5$.
- 4. An optical data storage medium as claimed in anyone of Claims 1 3, wherein
 25 λ has a value selected from the range of 650 665 nm and k_{Rλ} ≤ 0.2 at this value of λ.
 - 5. An optical data storage medium as claimed in Claim 4, wherein in nanometers:

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$$0.5*d_{RG} + 42 < g < 0.5*d_{RG} + 125$$
 and $70 < d_{RG} < 130$.

- 6. An optical data storage medium as claimed in Claim 5, wherein 100 nm < g < 160 nm.
- 7. An optical data storage medium as claimed in anyone of Claims 1 3, wherein λ has a value selected from the range of 400 410 nm and $k_{R\lambda} \le 0.20$ at this value of λ .
- 10 8. An optical data storage medium as claimed in Claim 7, wherein in nanometers: $0.5*d_{RG} + 20 < g < 0.75*d_{RG} + 95 \text{ and } 30 \text{ nm} < d_{RG} < 80 \text{ nm}.$
 - 9. An optical data storage medium as claimed in Claim 8, wherein 70 nm < g < 110 nm.
 - 10. Use of an optical data storage medium as claimed in any one of the preceding Claims, in an optical data storage medium recording/reading device suitable for tracking of the portion of the guide groove of an optical data storage medium nearest to the plane of incidence of the focused radiation beam.